

# A view from the NIH bridge: perspectives of a program officer

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**ABSTRACT** This essay is written from my perspective as a program officer for research and training activities at the National Institute of General Medical Sciences (NIGMS) for almost 27 yr. It gives a bird's-eye view of the job of a program officer, which includes providing advice to applicants and grantees, making funding recommendations, overseeing grantees' progress, facilitating scientific opportunities in specific areas of program responsibility, and shaping NIGMS and National Institutes of Health (NIH) policy. I have highlighted the numerous rewards of serving as a program officer, as well as some of the difficulties. For those who may be considering a position as an NIH program officer now or in the future, I've also described the qualities and qualifications that are important for such a career choice. Finally, this essay addresses some of the challenges for the NIH and the research community in the years ahead as we simultaneously face exciting scientific opportunities and tighter budgets.

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## INTRODUCTION

In the face of record deficits and shrinking National Institutes of Health (NIH) budgets, one might wonder why a sane person would choose a career in government service. As a program officer (PO) at the National Institute of General Medical Sciences (NIGMS) for almost 27 yr, I can say that, despite many swings of the funding pendulum—from the 1990 budget crisis to the 1998–2003 budget doubling to the current fiscal situation—serving the research and training community is an amazing opportunity to support and advance science and to guide trainees, fellows, newly established investigators, and senior scientists.

Although many of you reading this essay have NIH support, you probably don't have a good idea of what a PO does, or even who your PO is. Because part of my job is to educate the scientific community about how extramural funding and peer review work, I'll begin with the question, what does a PO do?

## THE JOB

The NIH comprises 27 institutes and centers (ICs), and the job of a PO will vary with the IC, but the basics are shared across the NIH. In a nutshell, and from the NIGMS perspective, POs advise applicants and grantees, make funding recommendations, oversee the

progress of funded grants, encourage scientific opportunities, and help develop NIH policy. However, we are just one part of an NIH team that serves the biomedical community. Our job complements that of the scientific review officer, who shepherds applications through the initial peer review process, appoints reviewers to study sections, runs study section meetings, and prepares summary statements. Once a priority score/percentile and summary statement have been generated, the responsibility shifts to the PO. In addition, POs work with IC grants management specialists on grants policy and business matters.

## Advice

Applicants may need advice at every step of the way, from whether their project is of interest to an IC's scientific mission or is responsive to a special initiative, to which study section might have the best expertise to review an application, to what the chances of funding are, or to what next steps are needed to revise and improve an application. Unfortunately, many applicants are reluctant to call their PO, and in this modern era of communication, most inquiries occur by email, where nuances may be lost. Therefore, I consider an important part of my job to be a social worker for scientists, trying to lead investigators and trainees through ever-changing policies, practices, and budgets and providing as much information as possible along the way. This year has been particularly challenging for applicants and POs. With an NIH budget appropriation not finalized until April, 9 mo into the fiscal year, it has been more difficult and more important than ever to provide timely information on funding prospects or the need to revise an application.

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## Funding

How are funding decisions really made? This is an area that varies considerably among ICs. In NIGMS, the PO plays an active role. As a first step, we listen to study section discussions and read the summary statements for applications in our program area (each of us has what is called a “portfolio” of applications and grants in a defined scientific area in which we are particularly knowledgeable). The next step is preparing for review by the NIGMS advisory council, during which council members may advise us on applicant concerns and the relative merits of the scored applications; every application that is funded by the NIH must receive this second level of review. After council review, NIGMS POs meet to discuss and recommend which applications should be funded. This process is mainly driven by the availability of funds and the initial peer review evaluation. However, many other important factors also are taken into consideration, including the following: information gained from the study section discussion, such as reviewer differences of opinion; council advice; novelty of the scientific area; the applicant’s status as a new or more established investigator; and the availability or lack of other support for the principal investigator. Although NIGMS establishes a “nominal” payline for each council round, based on the availability of dollars to fund all applications through a given percentile, in reality there is little difference in quality between applications that are within a few percentile points of each other. Therefore, we look at a range of applications on either side of the nominal payline and consider all of the relevant factors in making the final funding recommendation. In addition to recommending which applications should be funded, POs recommend the level of funding, making budget adjustments on a case-by-case basis that, on average, must meet NIH-mandated cost-containment guidelines.

## Oversight

Once an application is funded, it becomes part of a PO’s portfolio. We review annual progress reports, reading about the most recent research before it is published, and also advise grantees on strategies for their competing renewals, changes in project goals, and other issues that may arise in the course of a 4- to 5-yr grant award. However, a PO’s responsibility for oversight goes well beyond the individual grantees in a program portfolio. We have both the obligation and the pleasure of staying abreast of the latest advances in our area of science by attending conferences, meeting with our grantees, and reading relevant journals. These activities in turn enable us to perform a crucial part of a PO’s job, which is to identify emerging needs and opportunities.

## Facilitating scientific opportunities

One of the most gratifying activities for a PO is identifying an emerging area of science and fostering its development. A perfect example from my own experience is stem cell research. The development of human embryonic stem cell lines provided an incredibly exciting opportunity to address some of the most fundamental questions in biology, but one that required nurturing and overcoming technical as well as policy hurdles. As a PO I organized a series of workshops and developed initiatives to encourage scientists with little or no knowledge of stem cells to enter the field, master the necessary methodologies, obtain needed resources, and study the basic biology of stem cells. After the advent of embryonic stem cells came the discovery of induced pluripotent stem cells, and so these efforts continue as this important and fascinating area evolves.

## Policy

Many of us also serve on IC and trans-NIH committees tasked with developing or implementing new policies and practices. As an example, I serve on the NIH Stem Cell Task Force and the NIGMS Training Strategic Planning Committee, which provide me with an opportunity to help shape stem cell research and future research training efforts.

## THE REWARDS

I’ve briefly addressed the question of what a PO does for a living. The next big question is, what are the rewards, and is this a career that you might want to pursue? The things I enjoy most are 1) the “social worker” part of the job—the gratification that comes from helping applicants and grantees—and 2) being at the forefront of science where one gets a broad overview of how areas connect and evolve over time. The evolution of my program portfolio provides a wonderful example of the opportunities that ever-changing science offers a PO. When I first came to the NIGMS extramural program my background was in immunology, and I had the challenge of both starting a new program in molecular immunobiology and assuming responsibility for a program in cell growth and differentiation, a broad area about which I knew little. This was in 1984, and the field of cell cycle research was about to break wide open. Over time, my portfolio of grants grew and acquired a focus that came to support some of the best basic cell cycle scientists in the field. Then another emerging area, programmed cell death, blossomed, one that connected my immunology background with cell biology. Most recently, my program portfolio has evolved in response to new opportunities in stem cell research. It’s been great fun to learn new areas of science and watch them morph, driven in large part by the scientific community, but also with a little help from the NIH and me.

Although I’ve focused on the roles and rewards of a PO for research grants, equally important are a PO’s responsibilities for research training activities, including individual fellowships and institutional training grants. In a way, being a PO for research training weds the two parts of the job that I enjoy most, helping people (in this case, trainees) and overseeing change. Although approaches to training may evolve more slowly than research opportunities, training strategies must keep pace with workforce needs as well as the increasingly more complex and multidisciplinary practice of science. It’s been rewarding to develop new Ph.D. training grant programs in two emerging areas, bioinformatics and computational biology, and molecular medicine. Equally important is the challenge of promoting diversity in graduate programs. I’ve been involved in many activities over the last 15 yr with this goal in mind, including organizing a workshop in 2001 for training grant program directors, Achieving Scientific Excellence through Diversity; developing a new NIGMS website for diversity recruitment and retention strategies; and serving on the NIGMS Committee for Biomedical Workforce Diversity. It’s been gratifying to see the trainee diversity of my training grant portfolio increase over time, albeit more slowly than I would like. NIGMS is now engaged in implementation of a strategic plan for training, Investing in the Future, to which I and many others will contribute our philosophy and ideas for the next generation of scientists.

## THE QUALIFICATIONS

Perhaps you are wondering at this point what qualifies someone to be a PO and what are the needed skills and attributes? Like many of my colleagues at the NIH, I came to this position following a career as an independent research scientist, where I developed many skills that are essential for being a successful researcher or teacher, and

for being a PO. I believe the most important qualification for the job is a love and appreciation of good science; that is why POs are officially called health *scientist* administrators. At a minimum, one also needs excellent organizational skills, a talent for verbal and written communication, the ability to work well with others as a team, and good common sense. Needless to say, we all have different strengths. I think I've grown in many ways as I've gained experience, honed my skills, and benefited from many opportunities for on-the-job training.

## BACK TO THE FUTURE

What are the challenges facing the scientific community and the NIH? The future will depend more than ever on a partnership between research and educational institutions and the NIH. Clearly, one challenge is to meet the ever-changing scientific research and training opportunities in the face of limited financial resources. It's unlikely that we're going to see another budget doubling anytime soon. Investigators may have to get by with smaller and fewer grants, remembering that the R01 was intended to be a grant-in-aid that should leverage institutional and other resources. The NIH will

continue to support the best research and the training of outstanding scientists, preparing them for independent careers in academia and the many other rewarding career options available to them. It's worth noting that even with the current flat budget, NIGMS, just 1 of 27 ICs, is supporting more than 3500 R01s and roughly 4300 trainees on fellowships and training grants. Although shrinking budgets may make it harder to make funding decisions and more difficult and time consuming to advise applicants and grantees, I believe the job of a PO will be more important than ever in helping to sustain the enthusiasm and progress of the research and training enterprise.

So my view from the NIH bridge is that, despite choppy seas, science has never been more exciting, and, to paraphrase a familiar line, we're from the government and we're here to help you!

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